

REMARKS

The Final Office Action of March 25, 2003 has been carefully reviewed along with the art cited therein. Claims 1-22 and 25-37 are pending in the application. Claim 1 is amended in accordance with 37 CFR 1.116. The amendment parallels previously-entered amendments in the remaining independent claims, is a minor amendment that does not touch on the merits of the claim, and is designed to place the claim in better condition for consideration on appeal or in further prosecution. Applicants request that the examiner enter the amendment.

Claims 1-22 and 25-37 were rejected under 35 USC 102(a or e) as anticipated by Leidel (US 6,470,804), newly cited. The rejection under 102(a) is believed to be erroneous in that the Leidel patent was published (and issued) on October 29, 2002 after the filing of the present application. The rejection under 102(e) is overcome by the concurrently filed Affidavit under 37 CFR 1.132 in that the cited reference is not an invention "by another" as required under 35 USC 102(e). The Leidel reference was jointly invented by David Leidel and Jerry Walker, while the application was jointly invented by David Leidel and Nathan Clark. The subject matter of the Leidel patent relied on for the present rejection was conceived and invented by David Leidel. The application and reference are commonly owned by Halliburton Energy Services, Inc. This leaves only an obviousness rejection based on a combination of references remaining.

Claims 1-22 and 25-37 were rejected under 35 USC 103(a) as obvious over Reese in view of Kock, et al. Reese teaches an explosive liner with a tungsten content up to 90 percent but teaches away from using a tungsten content in the range claimed by Applicants. Reese states: "A range of compositions of powdered metal mixture, including powdered tungsten up to about 90 percent...down to powdered tungsten of about 70 percent...has been tested. It has been determined through this testing that mixture compositions within the specified range *still* provide effective shaped charge performance." Col. 3, ll. 55-62 (emphasis added). Reese teaches use of tungsten only within the specified range. Reese implies that increasing the tungsten content over the specified range will result in a shaped charge that is not effective, thereby teaching away from Applicants' claimed range of tungsten content.

Kock is not relevant to the tungsten content of shaped charge explosives. Kock is drawn to the formation of an "impact projectile" designed to penetrate armored plate while remaining intact. "Impact projectiles are solid cylinders of metal" and are designed to remain

solid throughout use, not breaking on impact. Kock, Col. 1, ll. 6-20. This is in marked contrast to Applicants' use of tungsten in a downhole application in an oil well environment. Applicants apply the tungsten as a liner on a shaped charge, not as a solid cylinder. The shaped tungsten liner of the invention is specifically designed to *disintegrate* upon detonation of the adjacent explosive, forming a hot jet of disintegrated heavy metal powder. The Applicants' liner is specifically designed to *avoid* the formation of metal fragments. Kock's impact projectile is a solid cylinder designed to remain as a solid throughout its flight and even through armored plating. As a consequence, even if it were taught to use the Kock projectile in a downhole environment, the projectile would, as intended, not disintegrate but rather leave a metal fragment plugging a part of the penetration into the downhole formation. This is in contrast to the teachings of the application. Specification, p. 1, line 16 – p. 2, line 4.

Additionally, there is no teaching or suggestion within either Reese or Kock to combine the teachings thereof. For this reason alone, the claims are allowable over the cited art.

It is believed that the application is in condition for allowance, and such action is respectfully requested. If the examiner is of the opinion that a telephone interview would speed prosecution, please do not hesitate to call Peter V. Schroeder at 214-220-0444.

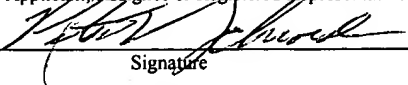
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Dated: May 16, 2003

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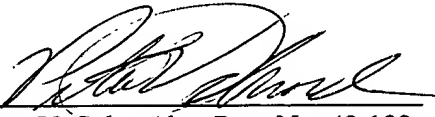
May 16, 2003
Date of Deposit

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Signature

May 16, 2003
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Respectfully submitted,


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